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Patent claims

1. An exhaust heat exchanger, in particular for motor vehicles having an exhaust gas recirculation system (AGR), composed of a housing jacket for a coolant, and of a nest of pipes through which exhaust gas flows and around which coolant flows and which is held in the housing by pipe plates, the nest of pipes, the pipe plates and the housing forming an enclosed force flux, characterized in that a sliding fit (5, 31, 3; 42) is arranged in the force flux.

2. The exhaust heat exchanger as claimed in claim 1, characterized in that the sliding fit (5) is arranged in the housing jacket (2).

3. The exhaust heat exchanger as claimed in claim 1, characterized in that the sliding fit (31/32, 42) is arranged between a pipe plate (24, 26) and the housing jacket (21, 21a, 21b).

4. The exhaust heat exchanger as claimed in claim 2, characterized in that the housing jacket (2) is divided transversely with respect to the direction of the force flux and has an end region (2a, 10) with a relatively large cross section and an end region (2b, 11) with a relatively small cross section, said regions overlapping in the direction of the force flux and being guided and sealed so as to slide one in the other.

5. The exhaust heat exchanger as claimed in claim 4, characterized in that a plastic layer (14) is arranged as a sliding layer between the end regions (10, 11).

6. The exhaust heat exchanger as claimed in claim 4 or 5, characterized in that sealing means (15) are arranged between the end regions (10, 11).

7. The exhaust heat exchanger as claimed in claim 6, characterized in that the sealing means are embodied as O rings (15).

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8. The exhaust heat exchanger as claimed in claim 4 or 5 or 6 or 7, characterized in that the end regions (2a, 2b) are formed by an outer ring (10) and an inner ring (11) whose wall thickness is greater than that of the housing jacket (2).

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9. The exhaust heat exchanger as claimed in one of claims 5, 6, 7, or 8, characterized in that the plastic layer (14) is applied to the outer ring (10) in a securely adhering fashion, and in that the inner ring (11) has a metallic smooth surface and forms a sliding fit (13) with the plastic layer (14).

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10. The exhaust heat exchanger as claimed in claim 8 or 9, characterized in that the outer ring (10) and the inner ring (11) are bonded onto the housing part (2a, 2b).

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11. The exhaust heat exchanger as claimed in claim 8 or 9 or 10, characterized in that the outer ring (10), the inner ring (11), the plastic layer (14) and the O rings (15) are embodied as a prefabricated sliding fit (5) which is finally connected to the end regions of the housing part (2a, 2b).

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12. The exhaust heat exchanger as claimed in claim 3, characterized in that the sliding fit is formed by a sliding surface (31) on the pipe plate and a sliding surface (32) on the housing, which sliding surfaces (31, 32) are sealed by means of O rings (29, 30) between the coolant side (22) and exhaust side (23).

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13. The exhaust heat exchanger as claimed in claim 12,

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characterized in that a drainage (33; 45, 47) is arranged between two O rings (29, 30; 43, 44).

14. The exhaust heat exchanger as claimed in claim 13,
5 characterized in that the drainage is embodied as a circumferential slit (33) which separates the housing (21) into two housing parts (21a, 21b), and in that the housing parts (21a, 21b) are held spaced apart from one another by means of spacer sleeves (34).

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15. The exhaust heat exchanger as claimed in claim 14,
characterized in that the housing parts (21a, 21b) have attachment eyelets (35) which are distributed over the circumference in the region of the slit (33) and
15 between which the spacer sleeves (34) are arranged.

16. The exhaust heat exchanger as claimed in claim 12 or 13, characterized in that the drainage is embodied as an annular groove (45) in the housing (41), which
20 annular groove (45) is connected to the atmosphere via at least one drainage opening (47).